

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/GB2004/001126

International filing date (day/month/year)
17.03.2004

Priority date (day/month/year)
20.03.2003

International Patent Classification (IPC) or both national classification and IPC
E21B33/138

Applicant
ADVANCED GEL TECHNOLOGY LIMITED

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☒ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 56.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/GB2004/001126

10/549634

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**International application No.
PCT/GB2004/001126

Box No. II Priority

1. ☒ The following document has not been furnished:

- ☒ copy of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(a)).
- ☐ translation of the earlier application whose priority has been claimed (Rule 43*bis*.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.
3. Additional observations, if necessary:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**International application No.
PCT/GB2004/001126**Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial
applicability**

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

- ☐ the entire international application,
☒ claims Nos. 1-26 (in part) 27,28-34 (in part) , 35-37

because:

- ☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination (*specify*):
- ☐ the description, claims or drawings (*indicate particular elements below*) or said claims Nos. are so unclear that no meaningful opinion could be formed (*specify*):
- ☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.
- ☒ no international search report has been established for the whole application or for said claims Nos. 1-26 (in part) 27, 28-34 (in part), 35-37
- ☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:
- the written form ☐ has not been furnished
☐ does not comply with the standard
- the computer readable form ☐ has not been furnished
☐ does not comply with the standard
- ☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.
- ☐ See separate sheet for further details

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

 International application No.
PCT/GB2004/001126

Box No. IV Lack of unity of invention

1. ☒ In response to the invitation (Form PCT/ISA/206) to pay additional fees, the applicant has:
- ☐ paid additional fees.
 - ☐ paid additional fees under protest.
 - ☒ not paid additional fees.
2. ☐ This Authority found that the requirement of unity of invention is not complied with and chose not to invite the applicant to pay additional fees.
3. This Authority considers that the requirement of unity of invention in accordance with Rule 13.1, 13.2 and 13.3 is
- ☐ complied with
 - ☒ not complied with for the following reasons:
see separate sheet
4. Consequently, this report has been established in respect of the following parts of the international application:
- ☐ all parts.
 - ☒ the parts relating to claims Nos. 1-26,28-30 (in part), 31-34

Box No. V Reasoned statement under Rule 43b/s.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
1. Statement

Novelty (N)	Yes: Claims	8-15,17,21,22 26,28-30,33,34
	No: Claims	1-7,16,18-20,23-25,31,32
Inventive step (IS)	Yes: Claims	
	No: Claims	1-26,28
Industrial applicability (IA)	Yes: Claims	1-26,28-34
	No: Claims	

2. Citations and explanations
see separate sheet
Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2004/001126

Re Item III**Non-establishment of opinion with regard to novelty, inventive step and industrial applicability**

The opinion with respect to patentability in Item V is restricted to that which has been searched; namely claims 1-26,28-30, 31-34 (all in part).

1. Because of lack of unity of the invention (see declaration under item IV) only the first invention has been searched namely claims 1-26,28-30 (in part),31-34
2. Furthermore present claims 1-26,28-30 (in part),31-34 relate to an extremely large number of possible methods and products. Support within the meaning of Article 6 PCT and disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the methods and products claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole claimed scope is impossible. Consequently, the search has been restricted to which appears to be supported and disclosed, namely methods restricting water passage in oil-producing subterranean formations (reduce water coning in order to increase oil production) using specific formulations such as the formulation as prepared and used in example 2 (see pages 29-35 of the description) and a reasonable generalisation thereof.

Re Item IV**Lack of unity of invention**

This Authority considers that there are 3 inventions covered by the claims indicated as follows:

- I: **Claims 1-26,28-30 (in part), 31-34** directed to:
method of restricting passage of fluid from first location to a second location and
method of plugging utilising a composition comprising a first material and a
second polymeric material or a third polymeric material (obtained by reacting the
first material and the second polymeric material), subterranean formation
comprising a third polymeric material and restrictor formulation comprising a first
material and a second polymeric material.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2004/001126

- II: **Claims 27,28-30 (in part)** directed to:
method of reducing the production of water from an oil-producing subterranean formation utilising a restrictor formulation characterised in terms of its density
- III: **Claims 35-37** directed to:
method of forming a polymeric material by encapsulating in a polymeric material droplets of a strength adjustment means

The reasons for which the inventions are not so linked as to form a single general inventive concept, as required by Rule 13.1 PCT, are as follows:

No common features can be identified for the 3 inventions which can be regarded as the same or corresponding special technical features in the sense of Rule 13.2 PCT. The application, therefore, lacks unity à priori.

Re Item V

Reasoned statement with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Reference is made to the following document:

D1: US4939203

1. General remarks:

The opinion with respect to Article 33(1) PCT is subject to the restrictions mentioned above in item III.

2. Novelty and inventive step

- 2.1. The present application does not meet the criteria of Article 33(1) PCT, because the subject-matter of claims 1-7,16,18-20,23-25,31,32 is not new in the sense of Article 33(2) PCT.

The document **D1** discloses (see abstract, column 7, lines 45-68; column 8, lines 34-43; column 10, lines 58-67) a method of forming a gel in-situ in the pores of

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/GB2004/001126

subterranean zones thereby retarding or blocking the flow of water therein. The gel is formed by reacting a first and a second substance, whereby the first substance comprises either polyvinyl alcohols or polyvinyl alcohol copolymers. The second substance is an aldehyde acting as crosslinking agent. Preferably the aldehyde is selected from dialdehydes. The subject-matter of claims 1-7,16, 18-20,23-25,31,32 of the present application is not novel.

- 2.2. The subject-matter of the dependent claims 8-15,17,21,22,26,28-30,33 and 34 of the present application is novel with regard document D1. However, said claims are deemed to refer simply to routine variations of the methods or products as disclosed in the different independent claims, which are within the ordinary skill of an expert in this art. Therefore an inventive step in the sense of Article 33(3) PCT cannot be acknowledged

Re Item VIII**Certain observations on the international application (clarity)**

Claims 1,2,6 (in part) have been drafted as separate independent claims in the same category. In view of the subject-matter of the present application, 3 independent claims in the same category is an unnecessarily high number and renders the set of claims not concise and creates an undue burden for a person skilled in the art to determine the scope of the present invention (Article 6 PCT). In the present case only one independent claim in each category would seem sufficient.